BOOK REVIEWS

Agronomy of Grassland Systems. C. J. PEARSON and R. L. ISON. Cambridge University Press: Cambridge, 1987, 169 pp. £9.95 softcover, £27.50 cloth.

Agronomy of Grassland Systems is a significant book which will influence the development of pasture science. Pearson and Ison, who work at the University of Sydney, have produced a thoughtful, well written monograph with a distinctive holistic approach to the science of grassland production which has not been duplicated elsewhere.

The authors are agronomists who also work in systems analysis. The book enunciates biological principles and systems concepts. Some facts are presented to illustrate and clothe principle but the authors claim "to have avoided prescriptions, which usually only have local relevance". There is a good geographical balance of illustration from tropical, subtropical, Mediterranean and cold temperature pastures.

Pearson and Ison describe "the principles which underly the biological operation of grassland systems", especially as these relate to the dynamics of the system; they do this with great clarity. The subject is broken down into a simple and logical sequence of topics. They start with generation, from the aspects of both the seed (seed banks, germination and establishment) and the vegetative bud. Chapters follow on growth, flowering and seed production, mineral nutrition, the relations of herbage quality to animal production, and the grassland-animal interface and its management. The concluding chapter gives perspectives and terminology for studying farming systems. It includes a descriptive analysis of the major agricultural systems with grassland components, a section on the integration of grassland and crops, and some approaches to the modelling of grassland systems.

My only major criticism is that the book pays insufficient attention to the characterisation and choice of grassland species for different environments, and to the genotypic variation available. There is also little mention of the role of plant improvement in maintaining or increasing grassland productivity. I hope these deficiencies will be addressed in future editions.

The attack throughout is rigorous and quantitative; we are not left with qualitative generalisations if there is an equation available. The book is well illustrated with tables, diagrams and drawings (but no plates); there is an index and the bibliography of *c.* 700 references will have utility for most grassland scientists.

No doubt the book will mainly be used as an undergraduate text but it belongs on the shelves of all pasture workers.

L. R. HUMPHREYS

Native Pastures in Queensland. Eds. W. H. BURROWS, J.C. SCANLAN and M. T. RUTHERFORD, Department of Primary Industries, Brisbane, 1988, 284 pp. $20.

This book is based on material presented at a workshop in July 1984 organised by the Pasture Management Branch of the Queensland Department of Primary Industries. The papers were revised later to incorporate comments made at the workshop and by the reviewers; however, only 11 of the more than 550 references are from 1985 onwards. The authors are all officers of the Queensland Department of Primary Industries.

The twelve chapters cover the resources and management of native pastures in Queensland. The importance of native pastures to Queensland agriculture is stressed in both the foreword and preface, and set out in detail in chapter 1. The following two chapters describe the environment and native pasture communities. Effects of plant morphology and physiology on native pastures (chapter 4), ecological relations

between trees and grass (chapter 6), and the nutritive value of native pastures (chapter 9) are then described and discussed.

Management of native pastures is mentioned in most chapters and it is the major topic in four of them. Chapter 5 covers principles of pasture management and the utilisation of native pastures in different regions of Queensland, while others deal with managing tree and shrub populations (chapter 7), the role of fire in native pasture management (chapter 8), and augmenting native pastures with sown species (chapter 10). The integration of different feed sources is also considered (chapter 12). Landscape degradation is currently gaining wide publicity and is an issue of major concern in grazing areas; degradation of native pastures is covered in chapter 11.

There are three appendices including one containing useful data on the nutritive value of native pasture species at different sites and times.

The book is generally easy to read, although with so many authors (28) there are a wide range of writing styles. There are a considerable number of cross-references between chapters and the editors have done a good job in bringing out the inter-relationships between topics. The presentation is impaired by two minor but annoying print details. Some headings are in the same type face as the text and thus long headings can be difficult to distinguish, and the letter "i" frequently looks like an "l". The area of native pasture in Queensland is given as 154 M ha in the foreword and 151 M ha in chapter 1 — a misprint?

This book is an excellent collection of knowledge on native pastures in Queensland—it covers the topic well, includes an extensive reference list, and contains a good index. At the attractive price of $20 it should be of interest to many pasture workers and a useful addition to libraries concerned with agriculture in Queensland.

J. G. McIvor

Tropical Pastures and Fodder Crops. Humphreys, L. R. Second Edition. Longman, Essex., 1987, 155pp., US$14.95.

Professor Humphreys has done an excellent job of collating his wide ranging experience in many tropical countries with an extensive literature review. This is a very readable and well presented book designed for "diploma students, first year university students and extension workers". This second edition updates the first edition (reviewed in *Tropical Grasslands* 13:191) with some new information and a wider range of photographs.

The book is mainly concerned with a philosophy for pasture improvement involving various improved grass and legume species. Contents are arranged in six parts: (1) Natural Grasslands of the Tropics; (2)Approaches to Pasture Improvement; (3) New and Improved Pasture Plants; (4) Pasture Establishment; (5) Soil Fertility and Fertilizer Needs of Tropical Pastures; (6) Pasture Management and Productivity. Annual fodder crops are described in one of six sections in Part 3 and in portion of a section in Part 6. Thus, information on natural grasslands and fodder crops is fairly sparse.

A well balanced pasture improvement philosophy is outlined, but there are a few important deficiencies. For instance there is no mention of land capability assessments which should be the basis for designing environmentally stable tropical pasture management systems for individual farms. Another, is the sparse treatment given to nitrogen fertilised pastures both per se and their integration with other pasture types in whole farm systems. In the present cost/price situation, grass/N pastures would appear to be the most profitable pasture type on well drained lands in the high rainfall tropics of the Philippines, Malaysia, Mexico, Australia and possibly other countries. Discussion of grass/N pastures in turn makes it desirable to expand the section on grazing methods to discuss the convenience of rotational systems for